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(71) Applicant (for all designated States except US): INTEL-LIGENT ENERGY LIMITED [GB/GB]; Rolls House, 7 Rolls Buildings, Fetter Lane, London EC4A 1NH (GB).

(72) Inventors; and

(75) Inventors/Applicants (for US only): HOOD, Peter, David [GB/GB]; Intelligent Energy Limited, 42 Brook Street, Mayfair, London W1K 5DB (GB). MITCHELL, Philip, John [GB/GB]; Intelligent Energy Limited, 42 Brook Street, Mayfair, London W1K 5DB (GB). AD-COCK, Paul, Leonard [GB/GB]; Intelligent Energy Limited, 42 Brook Street, Mayfair, London W1K 5DB (GB). COLE, Jonathan [US/US]; Intelligent Energy Limited, 42 Brook Street, Mayfair, London W1K 5DB (US).

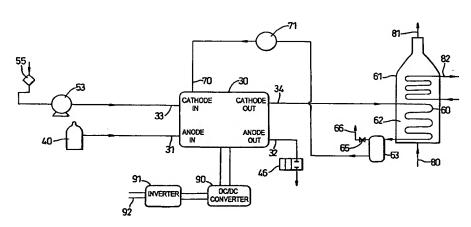
- (74) Agent: CHARIG, Raymond; Eric Potter Clarkson, Park View House, 58 The Ropewalk, Nottingham NG1 5DD (GB).
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### (54) Title: THERMAL ENERGY MANAGEMENT ELECTROCHEMICAL FUEL CELLS



(57) Abstract: A fuel cell assembly supplies water and water vapour by-product to a cooling water circuit delivered to a thermal storage tank from which it can be recycled to the fuel cell stack as direct input to the membrane electrode assemblies, for use as fuel/oxidant preheat and/or direct water injection to the membrane electrode assembly. The purity of water delivered to the membrane is thereby assured. The thermal storage tank allows for a decoupling of the thermal and electrical loads on the fuel cell stack in a combined heat and electrical power delivery unit. Under low external electrical loads, the fuel cell stack and its cooling circuit may be used at high capacity to provide hot water.

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